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Probability Analysis of Affecting Covid19 Diseases –Machine learning Approach

Renjitha R[1], Assistant Professor, Computer Application, DC School of Management and Technology, Idukki, Kerala

Abstract: The novel corona virus is a recently emerged human pathogen that has spread widely since December 2019. Developers around the world are building applications to provide users with accurate and up-to-date information as quickly as possible. The objective of this system is to motivate the people to use this web application to find their (self-assess) probability to be affected by the disease. And also, it helps to communicate with the nearby local-body to buy needed food items and medicines. This system is used by the administrator (The government authority), the local-body's like Grama-panchayath , Municipality etc. and the public users. The system allows the users to check their probability of infection with automated and evidence-based self-assessment. Machine learning is used for getting the accurate percentage of probability of the disease that can be affected to a person. Public users get their real-time evaluation by analyzing simple details such as users' body temperature, body pain, breathing conditions, recent travel history and more. The result of self-assessment can be also viewed by the local-bodies and they can provide further guidelines for the public user. Also, the users can get the current updates by the news headlines and the tabular data provided in the website.

Keywords: System, Website, Probability, Application

I. INTRODUCTION

A. Problem Statement

Corona virus disease 2019 (COVID-19) is an infectious disease caused by severe acute respiratory syndrome corona virus. The project entitled BREAK THE CHAIN is intended to be helpful for the state and central governments in this uncontrollable situation of Corona virus outbreak. According to the World Health Organization, there are neither available vaccines nor specific antiviral treatments for COVID-19. After investigating the problem of modeling of corona virus spread in constrained or practical scenario in the world, it is noticed that lock-down and isolation are the important techniques to prevent the spreading of the disease. As due to lock-down, main of the peoples are facing the problems to get food items and lifesaving medicines. The web app provides the facility to order food from nearby community kitchen and avail medicines from the nearby local body. Also, the web application allows the users to check their probability of infection with automated and evidence-based self-assessment. Machine learning is used for getting the accurate percentage of probability of the disease that can be affected to a person. This helps the peoples to be stay at home and fight against corona outbreak.

B. Objective of the study

The main objective of this study is to:-

(a) To motivate the people to use this web application to find their(self-assess) probability to be affected by the corona virus disease.

(b) To help the peoples to communicate with the nearby local-body to buy needed food items and medicines.

(c) To be update the user about the viruses affected details.

II. REVIEW OF LITERATURE

A. Existing System

The study of existing system is a prerequisite for developing any software system. The study of the system reveals many features of the existing system. This gives analyst an insight into the working of the system and helps the developer to design an appropriate system, which will eliminate the many limitations present in the existing system. The novel corona virus is first identified in December 2019 in China. Since, developers around the world are building applications for the public to get up-to-date and accurate information as quickly as possible. There was not an appropriate system for finding the probability percentage of disease. Also, the local bodies were contacting with the public manually. The data of the public user was collected manually. No computerized systems where used

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for this process. No systems provide accurate probability percentage of disease affection. Following are the disadvantages of existing system:-

- Users don't get accurate result.
- Data's are collected on Paper.
- Difficult to keep all the paper records
- Document storing and accessing them takes more time

B. *Proposed System*

The proposed system can overcome all the limitations of the existing system. The new proposed system is developed using Python programming Language. Machine Learning techniques are used for calculating the accurate disease affecting percentage. The system is highly user interactive and information's can be obtained by a click. It provides more data security by user authentication and other security mechanisms. The public user can check their probability to affect corona disease easily. The local bodies can get the Probability test result details of the public users easily, and give them advices and guidelines. All the users get Up-to-date updates about the corona virus through news headlines and tabular stats from the proposed system. Also, public can easily communicate with their local bodies to avail their needs such as food and medicines. The advantages of proposed system are:-

- Proper updating is possible
- Accurate probability percentage of disease can be obtained
- Get updated data about the disease
- Less time consuming and easy to use
- User friendly and interactive
- All details will be available on a click.

The various features of proposed system are as follows:-

• Access to the system and database as per user identification
• Maximum security ensured
• Integrity reliability and integrity of data
• User-friendly and flexible in all aspects
• Data entry updates is quite easy
• Effective table manipulation
• Good validation checking
• Easy maintenance
• Removes chances of leakage of information.
• Provides a better record keeping system

All these forms the major aspects and advantages of the proposed system. Provision is made for effective improvements of maintenance are needed at any stage.

III. System Analysis And Design

For the development of the new system, a preliminary survey of the existing system will be conducted. An investigation is done whether the up gradation of the system into an application program could solve the problems and eradicate the inefficiency of the existing system

A. *System Design*

Systems design is the process of defining the architecture, components, modules, interfaces, and data for a system to satisfy specified requirements. System design could be seen as the application of systems theory to product development. Computer software design changes continually as new methods, better analysis and broad understanding evolves.

There are mainly three modules:

a) Admin

The admin of this system doesn't perform many processes. Admin only adds current updates like covid-19 tabular stats, corona news updates, Awareness, guidelines etc.

b) Local Body

The local body includes the Grama panchayat and Municipality perform all the main activities in this web app. Local-bodies add food items in community kitchen of portal, add medicines in portal, view all registered users and their probability result, view food and medicine orders.

c) Public User

The public users are the main users of this web application. They can register in the web app and avail all its features. They can test corona probability, view and order food items and medicines from the portal. View covid-19 updates, news, tabular stats, guidelines etc.

B. *Database Design*

In database design specific objectives are considered

- Controlled redundancy
- Easy to learn and use.
- Data independence.
- Accuracy and integrity.
- Security.
- Performance
- Recovery from failure.

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C. *Database Table*

TABLE I
PORTAL USER

Field Name	Data Type	Constraints	Description
login	CharField	Primary key, Not Null	User's Phone No
otp	CharField	Not Null	OTP send to PhNo
otp_generated	TextField	Not Null	Generated OTP
verified	BooleanField	Not Null	Verified or not

TABLE 2
PORTAL USER PROFILE

Field Name	Data Type	Constraints	Description
login	CharField	Primary key, Not Null	User's Phone No
localbody	CharField	Foreign Key, Not Null	User's Localbody
fname	CharField	Not Null	User's First name
lname	CharField	Not Null	User's Last name
email	CharField	Not Null	User's email id
altno	CharField		Alternate Phone No
address	CharField	Not Null	User's Address
place	CharField	Not Null	User's place
city	CharField	Not Null	User's City
pincode	CharField	Not Null	User's Pincode

TABLE 3
FOOD ITEM

Field Name	Data Type	Constraints	Description
item_id	AutoField	Primary key, Not Null	Food item id
item_name	CharField	Not Null	Food item name
item_description	TextField	Not Null	Food item description
Item_price	FloatField	Not Null	Food item price
Item_qty	ItemField	Not Null	Food item quantity
Item_date	TextField	Not Null	Food item added date
localbody	CharField	Foreign Key, Not Null	Current localbody

TABLE 4
FOOD ITEM LIST IN ORDERS

Field Name	Data Type	Constraints	Description
item_id	AutoField	Foreign key, Not Null	Food item id
Item_qty	ItemField	Not Null	Food item quantity
Item_date	TextField	Not Null	Food item added date
uid	TextField	Not Null	
user	CharField	Not Null	User's Ph No
localbody	CharField	Foreign Key, Not Null	Current localbody

TABLE 5
FOOD ORDERS

Field Name	Data Type	Constraints	Description
order_id	AutoField	Primary key, Not Null	Order id
order_date	TextField	Not Null	Ordered date
total_price	FloatField	Not Null	Total cost for orders
user_id	CharField	Not Null	User Ph No
localbody	CharField	Foreign Key, Not Null	Current localbody
status	BooleanField	Not Null	Order status
confirmed	BooleanField	Not Null	Confirmed or not

TABLE 6
OFFICIAL USERS

Field Name	Data Type	Constraints	Description
email	EmailField	Primary key, Not Null	Localbody email id
passwd	CharField	Not Null	password
designation	CharField	Not Null	Localbody designation
contact_no	CharField	Not Null	Localbody contact_no
contact_person	CharField	Not Null	Localbodycontact_person
localbody_name	CharField	Not Null	Localbody name
Is_admin	BooleanField	Not Null	Admin or Not

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TABLE 7
OFFICIAL AUTHORITIES LIST

Field Name	Data Type	Constraints	Description
localbody_state	CharField	Not Null	Localbody state
localbody_district	CharField	Not Null	Localbody district
localbody_type	CharField	Not Null	Localbody type
localbody_name	CharField	Not Null	Localbody name
localbody_admin	CharField	Foreign key, Not Null	Localbody admin

TABLE 8
TEST RESULT

Field Name	Data Type	Constraints	Description
user_id	CharField	Foreign key, Not Null	Users login id
localbody	CharField	Foreign key, Not Null	Current user's localbody
test_date	TextField	Not Null	Covid test date
fever	IntegerField	Not Null	Body temperature
pain	IntegerField	Not Null	Body pain or not
age	IntegerField	Not Null	User's age
nose	IntegerField	Not Null	Runny nose or not
breath	IntegerField	Not Null	Breathing difficulty
travel	IntegerField	Not Null	Travel details
other	IntegerField	Not Null	Other diseases
disease	TextField		Mention disease
result	TextField	Not Null	Final probability

TABLE 9
MEDICINE

Field Name	Data Type	Constraints	Description
medicine_id	AutoField	Primary key, Not Null	medicine id
medicine _name	CharField	Not Null	medicine name
medicine _price	FloatField	Not Null	medicine price
medicine _qty	ItemField	Not Null	medicine quantity
localbody	CharField	Foreign Key, Not Null	Current localbody

Field Name	Data Type	Constraints	Description
Med_order_id	AutoField	Primary key, Not Null	Order id
order_date	TextField	Not Null	Ordered date
total_price	FloatField	Not Null	Total cost for orders
user_id	CharField	Not Null	User Ph No
localbody	CharField	Foreign Key, Not Null	Current localbody
status	BooleanField	Not Null	Order status
confirmed	BooleanField	Not Null	Confirmed or not

C. *Sequence Diagram*

a)Local body

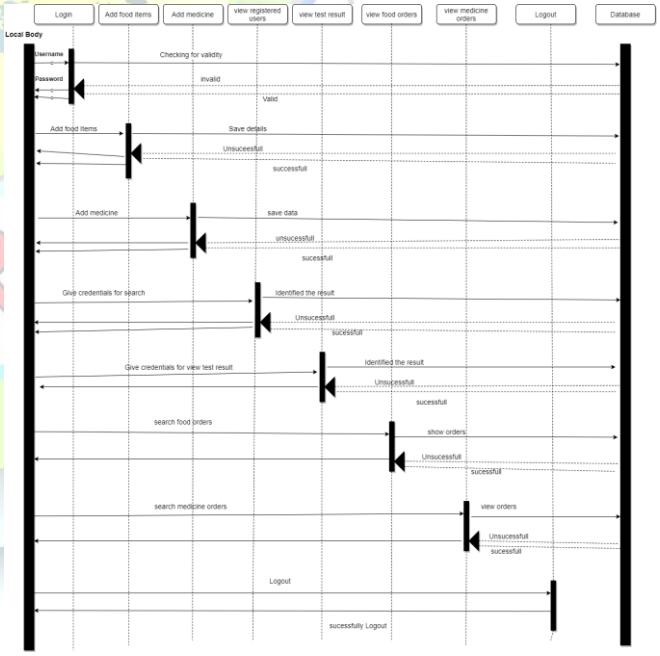

Fig. 1. Sequence diagram of Localbody

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b)Public User

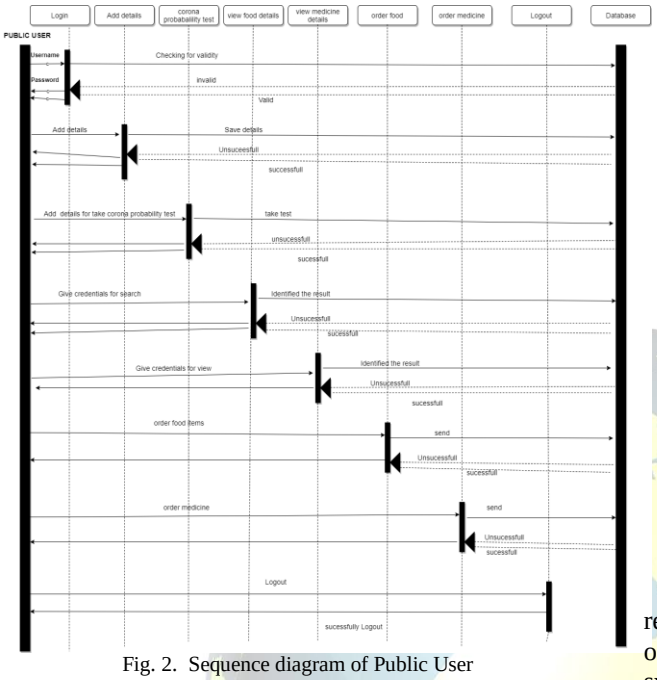

Fig. 2. Sequence diagram of Public User

D. Activity Diagram

a) Local body

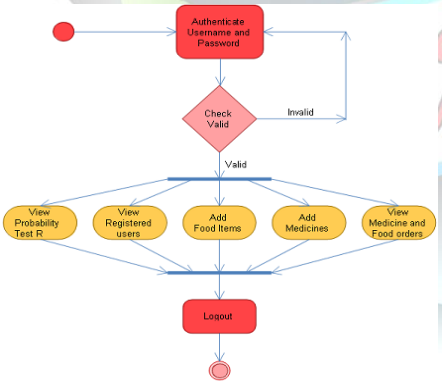

Fig. 3. Activity diagram of Local body

b) Public User

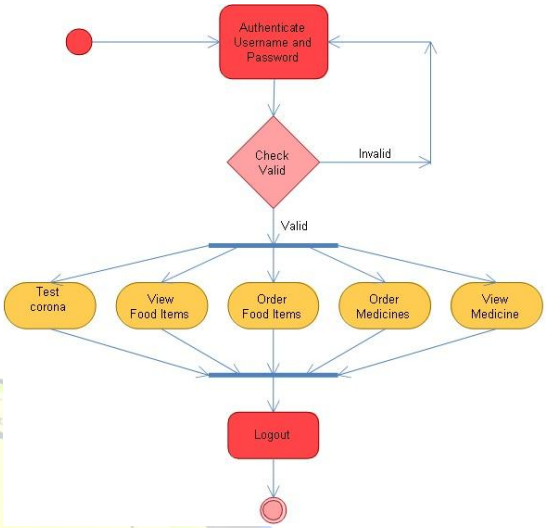

Fig. 3. Activity diagram of Public User

IV. SYSTEM IMPLEMENTATION

Implementation means the process of converting a new or revised system design into operational one. The three types of implementation are: -implementation of a computerized system to replace a manual system, implementation of a new system to replace existing one and implementation of a modified system to replace an existing one.

The implementation is the final stage and it is an important phase. It involves the individual programming; system testing, user training, and the operational running of developed proposed system that constitute the application subsystem. The implementation phase of the software development is concerned with translating design specification in the source code. The user tests the developed system and the changes are according to the needs. Before implementation, several tests have been conducted to ensure no errors encountered during the operation. The implementation phase ends with an evaluation of the system after placing it into operation of time. The validity and proper functionality of all the modules of the developed application is assured during the process of implementation. Implementation is the process of assuring that the information system is operational and then allowing user to take over its operation for use and evaluation. Implementation is the stage in the system where the theoretical design is turned into a working system. The implementation phase constructs, installs and operated the new system. The most crucial stage in achieving a new successful system is that it works effectively and efficiently.

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V. FUTURE ENHANCEMENT

This study can be extended any time. Public useful apps like Blood donation app, Ecommerce web apps etc. can also be included in this study which may help public in this uncontrollable situation. Also mapping users who is corona positive can be also include in this study which make other users to be stay safe.

VI. CONCLUSION

The system allows the users to check their probability of infection with automated and evidence-based self-assessment using this web application. Also, it helps the users to stay at their home and get needed food items and medicines. So, this is very helpful in this situation. The system is developed as a group of applications, so each app can be maintained individually and if we face any similar problems in the future, we can modify it as per our needs. After investigating the problem of new corona virus spread, it is noticed that lock-down and isolation are the important techniques to prevent the spreading of the disease. This is possible by using this web application. All the updates about corona spread and user needs can be avail at user finger tip by using this web application. This helps the peoples to be stay at home and fight against corona.

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The success of this study largely on the encouragement and guidelines of many others. I would like to take this opportunity to express our gratitude to those people who have been instrumental in the successful completion of this study.

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BIOGRAPHY

Renjitha R , Assistant Professor of DC School of Management and Technology, Pullikkanam, MCA, Department of Computer Applications.